

CHAPTER 5  
RAMPS

5.1 GENERAL REQUIREMENTS

- 5.1.1 Inclined walking surfaces conforming to Definition 2.2.31 shall comply with this Chapter. Vol. I-C, 4.1(a)(1); ADAAG 4.8.1
- \*5.1.2 Ramps shall have surfaces that are fixed, firm and non-slip. *Surfaces that become soft when exposed to heat, sun, light, water, etc. shall not be used. Surfaces such as, but not limited to, concrete, wood, or asphalt for exterior ramps, and carpet, resilient tile or ceramic tile for interior ramps are acceptable finished walking surfaces.* Vol. I-C, 4.1(a)(2); Sim. To ADAAG 4.8.6 [4.5.1]
- \*5.1.3 Exterior ramps and landings may incorporate a *1/4 inch per foot (6 mm per 305 mm)* maximum cross slope so as to prevent water accumulation on the walking surfaces Vol. I-C, 4.1(a)(3); ADAAG 4.8.6 And 4.8.8; Vol. I (1996), 1013.8
- \*5.1.4 *Free-standing ramps shall be capable of supporting a minimum 100 pounds per square foot (488 Kg per square meter) live load.* Vol. I-C, 4.1(b)(2)

5.2 SLOPES, CLEARANCES, INTERIOR ACCESSIBLE ROUTE, AND PASSING SPACE

- 5.2.1 The maximum slope of a ramp shall be 1:12 (25mm:305mm). *8% slope* Vol. I-C, 4.1(b)(1); ADAAG 4.8.2
- 5.2.2 For the minimum clear width of an exterior ramp, see 3.2. *48"* Cross-Reference
- \*5.2.3 An interior accessible route (including ramps) shall have a 36 inches (915 mm) minimum clear width (for exception see 10.5.1). On a level plane, clear turning space around an obstruction shall be *48 inches (1220 mm) minimum regardless of the width of the obstruction.* For a ramp, see 5.3.5 or 5.3.6. Vol. I-C, 4.1(b)(3)
- 5.2.4 If an interior accessible route has a clear width that is less than 60 inches (1525 mm), then passing space complying with 3.3.4 shall be provided. ADAAG 4.3.4

5.3 MAXIMUM RISE AND LANDINGS

- 5.3.1 Ramps that have a slope of 1:16 (25mm:405mm) up to a 1:12 (25mm:305mm) maximum shall have an intermediate landing for each 30 feet (9 m) of horizontal run (i.e., each 30 inches [760 mm] of vertical rise). ADAAG 4.8.2, Figure 16
- 5.3.2 Ramps that have a slope of less than 1:16 (25mm:405mm) but greater than 1:20 (25mm:510mm) shall have an intermediate landing for each 40 feet (12 m) of horizontal run (i.e., each 30 inches [760 mm] of vertical rise). ADAAG 4.8.2, Figure 16

**\*5.3.3 At the top of each ramp there shall be a 60 inches by 60 inches (1525 mm by 1525 mm) minimum clear landing.** Vol. I-C, 4.1(d)

5.3.4 Intermediate landings required at straight ramp segments shall have a 60 inches (1525 mm) minimum length parallel to the direction of travel. Landing width shall be equal to the ramp width. ADAAG 4.8.4(1), 4.8.4(2)

5.3.5 If a ramp makes a 90 degree turn, then the clear dimension of the landing shall be 60 inches by 60 inches (1525 mm by 1525 mm) minimum. ADAAG 4.8.4(3); Vol. I-C, Page 33

**\*5.3.6 If a ramp makes a 180 degree turn, then the minimum clear dimension of the intermediate landing shall be 60 inches (1525 mm) by the width of both ramps.** Sim. To Vol. I-C, Page 34

5.3.7 If a door is located at any ramp landing, then the clear floor area in front of the door shall comply with the applicable requirements of 7.3. ADAAG 4.8.4(4)

5.3.8 At the bottom of the ramp there shall be a 60 inches (1525 mm) minimum straight and level clearance measured parallel to the direction of travel. The minimum width of the landing shall be equal to the width of the ramp. Vol. I-C, 4.1(e); ADAAG 4.8.4(2)

## 5.4 HANDRAILS

5.4.1 If a ramp has a rise greater than 6 inches (150 mm) or a horizontal run greater than 72 inches (1830 mm), then it shall have handrails on both sides. Handrails are not required adjacent to seating in assembly areas. ADAAG 4.8.5

5.4.2 Handrails shall comply with the following:

(1) Gripping surfaces shall be between 1-1/4 inches and 1-1/2 inches (32 mm to 38 mm) width or outside diameter. The use of 1-1/4 inches to 1-1/2 inches (32 mm to 38 mm) Interior Pipe Size is acceptable. Vol. I-C, 4.1(c)(6); ADAAG 4.26.2; Access Board FAQ No. 8

(2) Mounting height shall be between 34 inches minimum to 38 inches maximum (865 mm to 965 mm) above the finished walking surface. Vol. I-C, 4.4.1(b)- 30" To 34"; ADAAG 4.8.5(5)-34" To 38"

(3) Handrails shall be continuous. If not continuous, then they shall extend 12 inches (305 mm) minimum beyond the top and bottom of each ramp segment. The 12 inches (305 mm) minimum extension shall parallel to the finished floor, ground level, or intermediate landing. Vol. I-C, 4.1(c)(4); ADAAG 4.8.5(2)

- (4) Clear hand space between the rail and any wall or partition shall be 1-1/2 inches (38 mm). ADAAG 4.8.5(3)
- (5) On dogleg (90 degree turn) or switchback (180 degree turn) ramps the inside handrail shall be continuous. Horizontal extensions are not required. ADAAG 4.8.5(1)
- (6) Gripping surfaces shall be continuous. ADAAG 4.8.5(4)
- \* (7) If ramps terminate at walks, halls, corridors, passageways or aisles, then the horizontal extension may protrude 3-1/2 inches (90 mm) maximum into the connecting accessible route. The 3-1/2 inches (90 mm) maximum protrusion shall not reduce the clear required width for accessible routes or maneuvering spaces.** Vol. I-C, 4.1(c)(5)
- \* (8) Handrails ends shall be rounded or shall return smoothly to the floor, wall or post. Care shall be taken that the handrail extension is not in itself a hazard. (NOTE: If the handrail extension returns to the wall, then a 1/4 inch [6 mm] maximum gap between the wall face and handrail end may be permitted to facilitate installation and alignment.)** ADAAG 4.8.5(6)
- (9) Handrails shall not rotate within their fittings. ADAAG 4.8.5(7)
- (10) Handrails and adjacent wall surfaces shall be free of any sharp or abrasive elements. Handrail edges shall have a 1/8 inch (3 mm) minimum radius. ADAAG 4.26.4  
Code Interpretation By Staff  
**(NOTE: The purpose of this requirement is the elimination of potential hazards caused by poor construction methods or workmanship, and/or indifferent building maintenance. This requirement shall not be interpreted to exclude materials such as concrete, unit masonry, stucco, etc., for the finished wall surface.)**

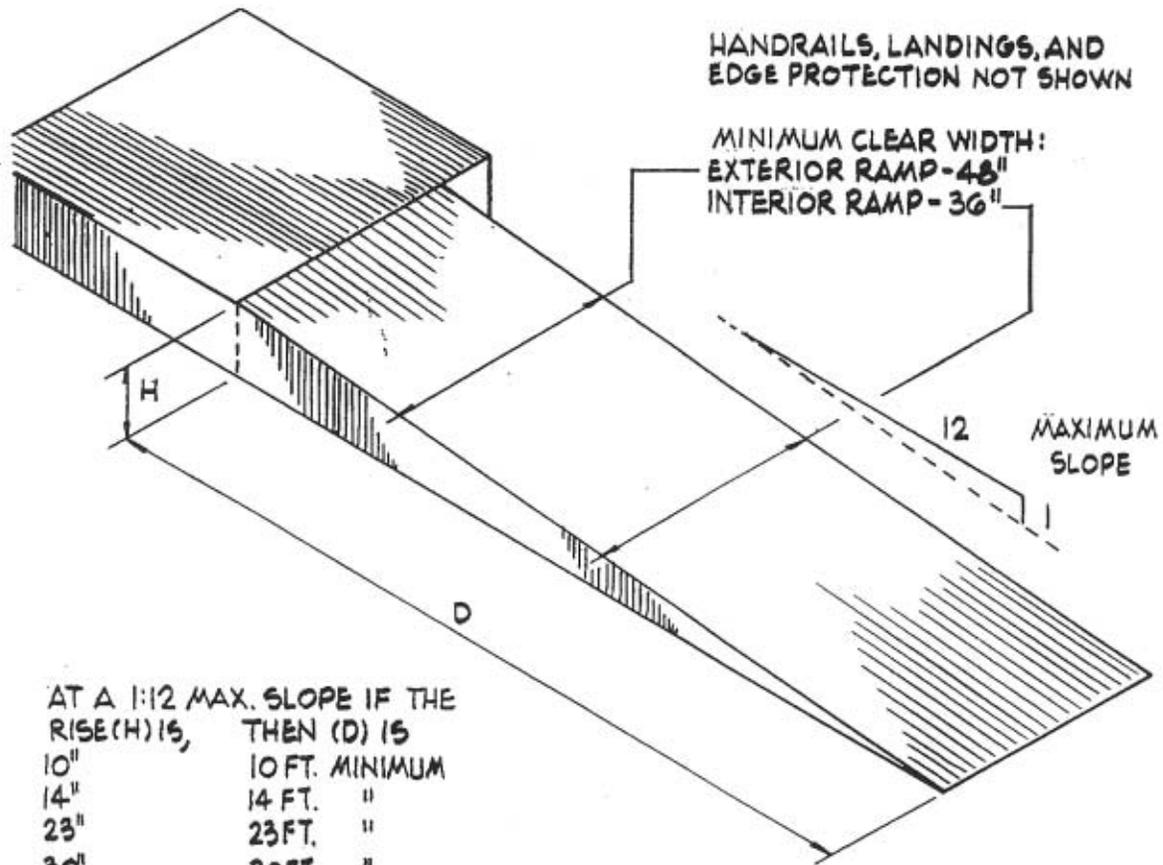
- \* 5.4.3** If a handrail is located in a recess, then the recess shall have a **3-1/2 inches (90 mm)** maximum depth and the height of the recess above the top of the handrail shall be 18 inches (460 mm) minimum. ADAAG 4.26.2, Figure 39(d)

## 5.5 EDGE PROTECTION

- \* 5.5.1** For the purposes of this Chapter a drop-off shall be defined as a vertical change in bearing surface greater than 1/2 inch (6 mm) or an adjacent slope steeper than 1:12 (25mm:305mm) (NOTE: The requirements of this Section are not applicable to curb cuts and curb ramps having 1:10 [25mm:255mm] side flares.) ADAAG 4.13.8  
1/2 Inch Consistent With:  
Vol. I-C, 3.1(d);  
Vol. I-C, 4.3.8(a);  
ADAAG 4.5.2;

\*5.5.2 In addition to handrails, ramps and landings with drop-offs shall have curbs, walls, railings or other projecting surfaces that will prevent *chair wheels, crutches, canes or other similar aids to mobility from slipping off the ramp or landing edge*. If curbs are used for protection, then they shall have a 2 inches (50 mm) minimum height with drainage provisions for exterior ramps and landings.

Vol. I-C, 4.1(g);  
ADAAG 4.8.7



AT A 1:12 MAX. SLOPE IF THE RISE (H) IS, THEN (D) IS

10"	10 FT. MINIMUM
14"	14 FT. "
23"	23 FT. "
30"	30 FT. "

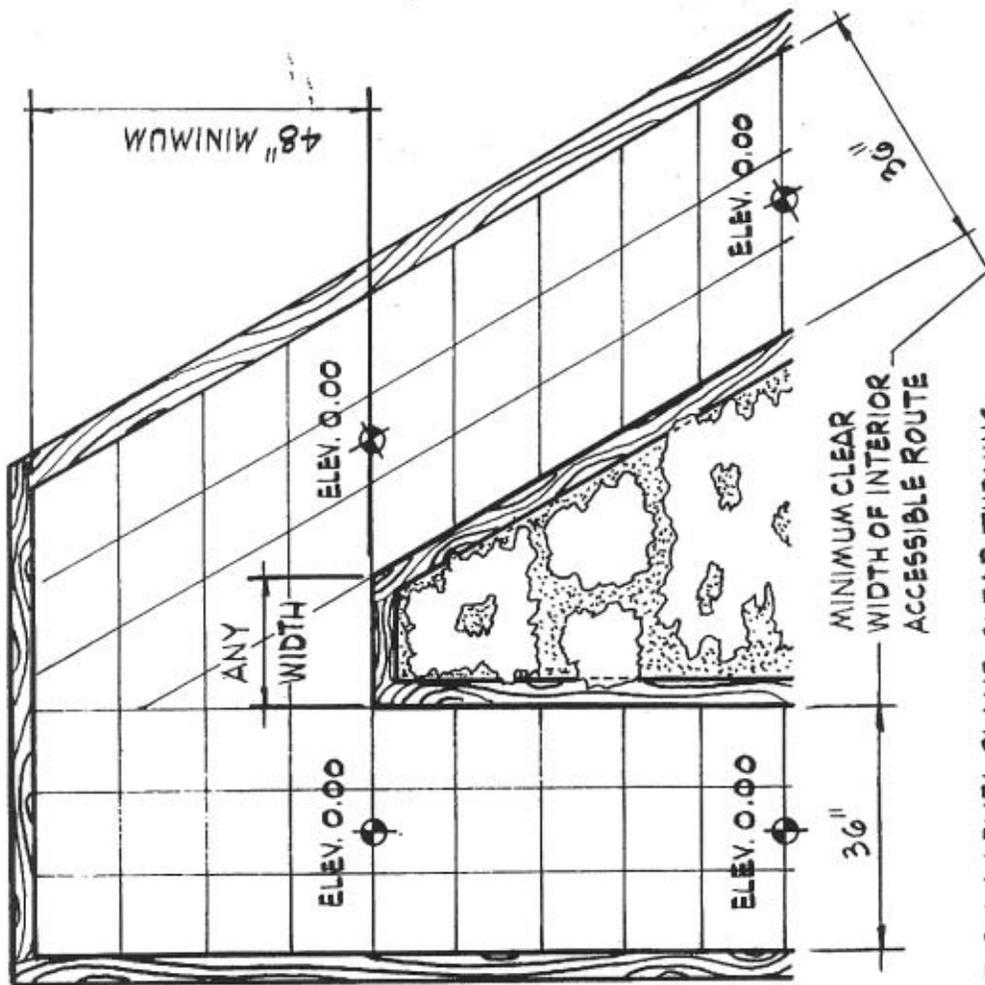
SEE 5.3.1 AND 5.3.2 FOR INTERMEDIATE LANDINGS.

**5.2.1**-RAMPS SHALL HAVE A 1:12 MAXIMUM SLOPE

**5.2.2**-EXTERIOR RAMPS SHALL HAVE A MINIMUM 48" CLEAR WIDTH.

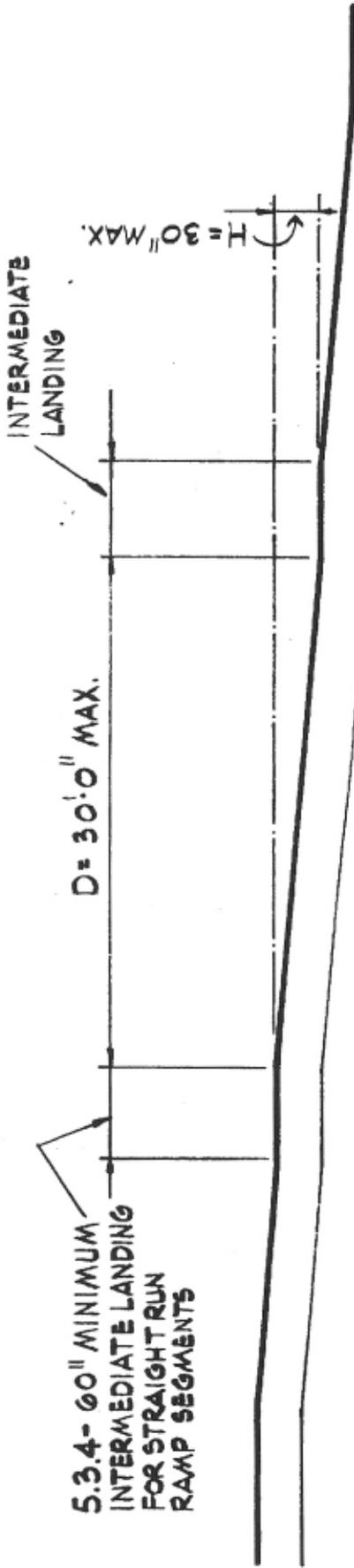
FOR EXCEPTION SEE 10.5.1

**5.2.3**-AN INTERIOR ACCESSIBLE ROUTE (INCLUDING RAMPS) SHALL HAVE A MINIMUM 36" CLEAR WIDTH.

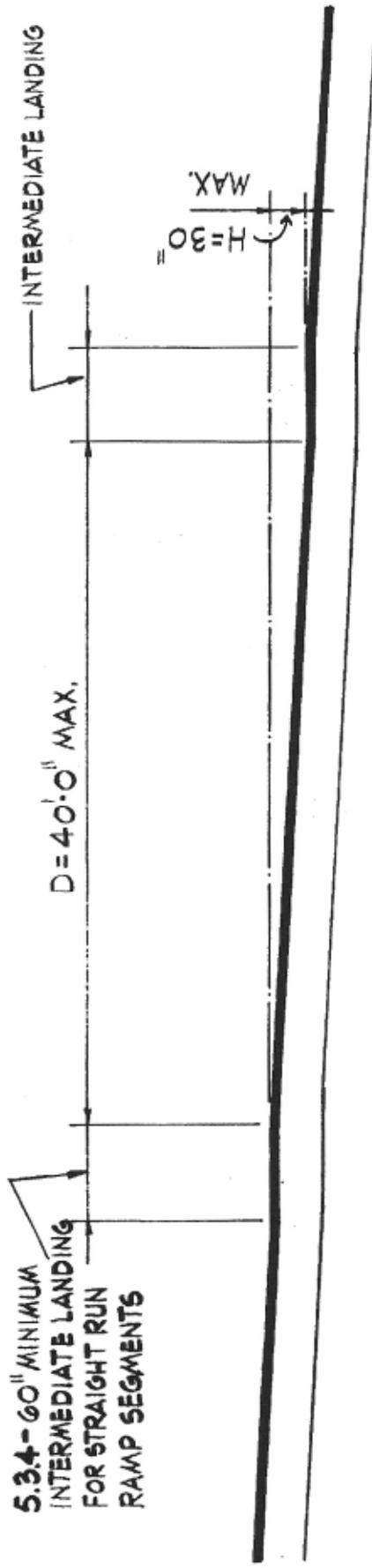


⊕ ELEV. 0.00 THROUGHOUT  
USED TO DENOTE LEVEL FLOOR

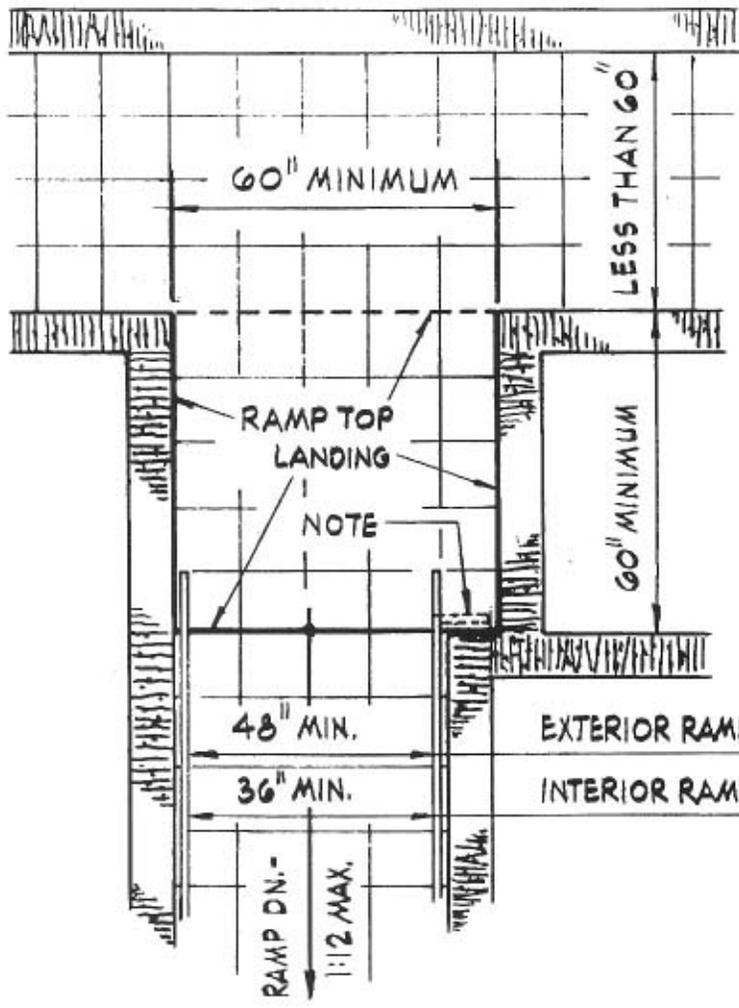
**5.2.3-** ON A LEVEL PLANE, CLEAR TURNING SPACE AROUND AN OBSTRUCTION SHALL BE 48" MINIMUM REGARDLESS OF THE OBSTRUCTION WIDTH. FOR RAMP, SEE 5.3.5 OR 5.3.6.



**5.3.1-** RAMP WITH A SLOPE OF 1:12 UP TO 1:12 MAXIMUM SHALL HAVE AN INTERMEDIATE LANDING FOR EACH 30 FEET OF HORIZONTAL RUN.



**5.3.2-** RAMP WITH A SLOPE LESS THAN 1:16 BUT GREATER THAN 1:20 SHALL HAVE AN INTERMEDIATE LANDING FOR EACH 40 FEET OF HORIZONTAL RUN.

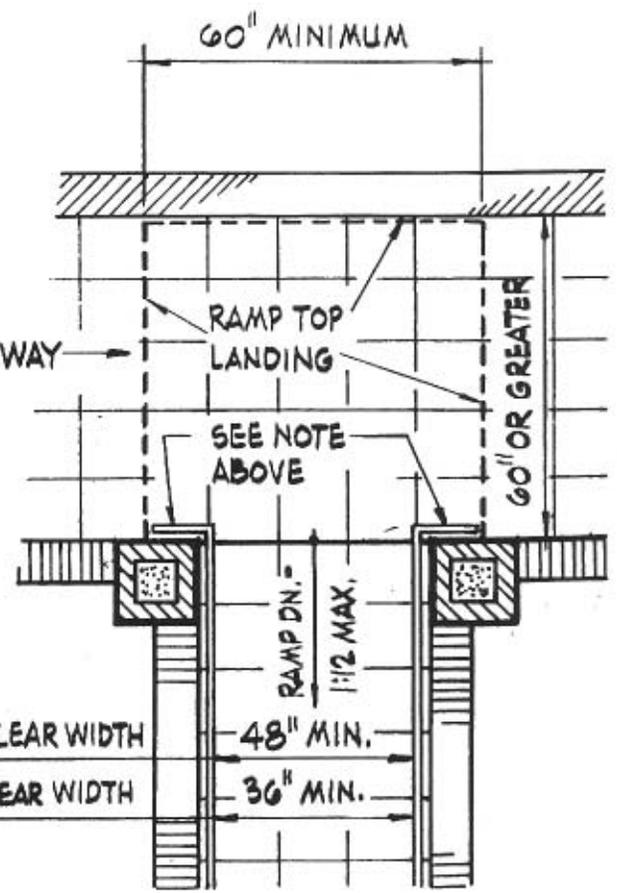


NOTE:  
HANDRAIL MAY BE TURNED 90°  
SO AS NOT TO BE A HAZARD  
TO RAMP USERS.

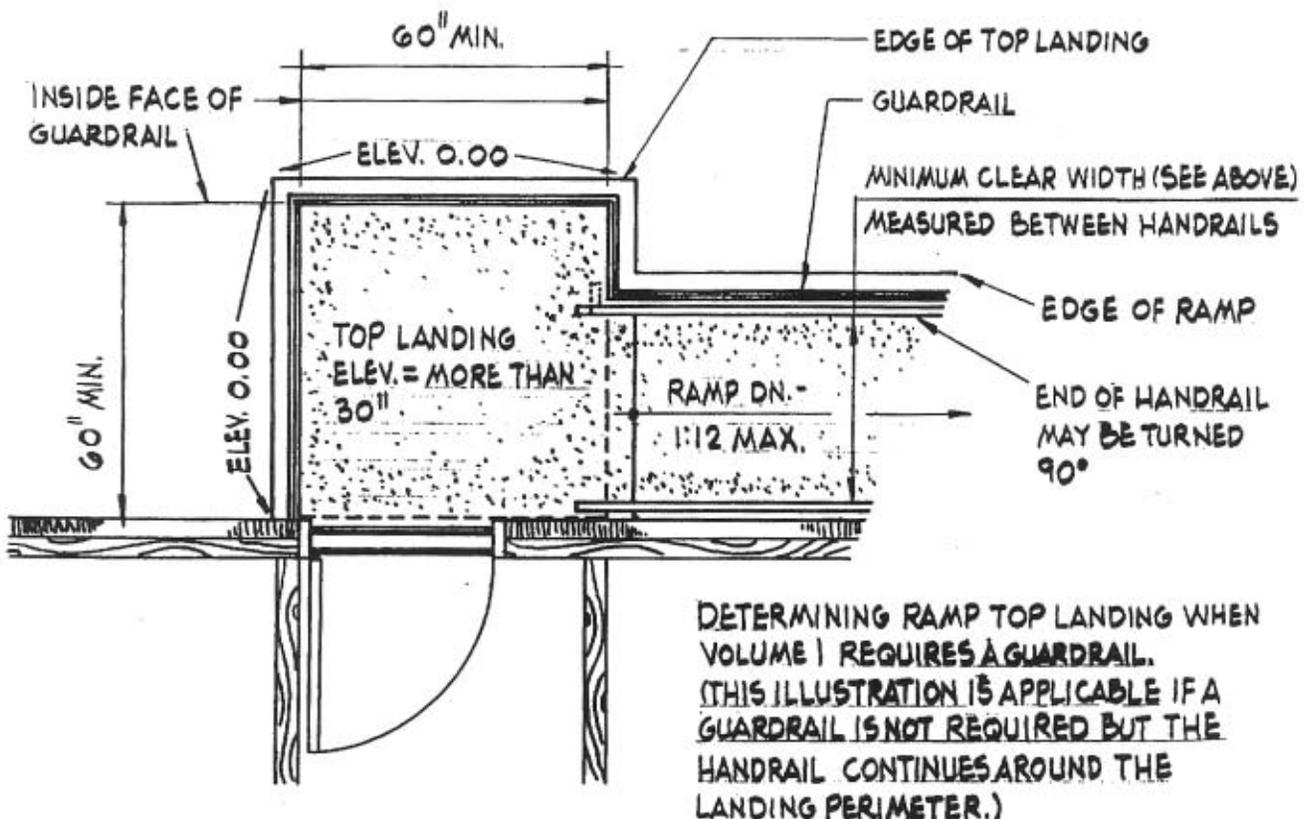
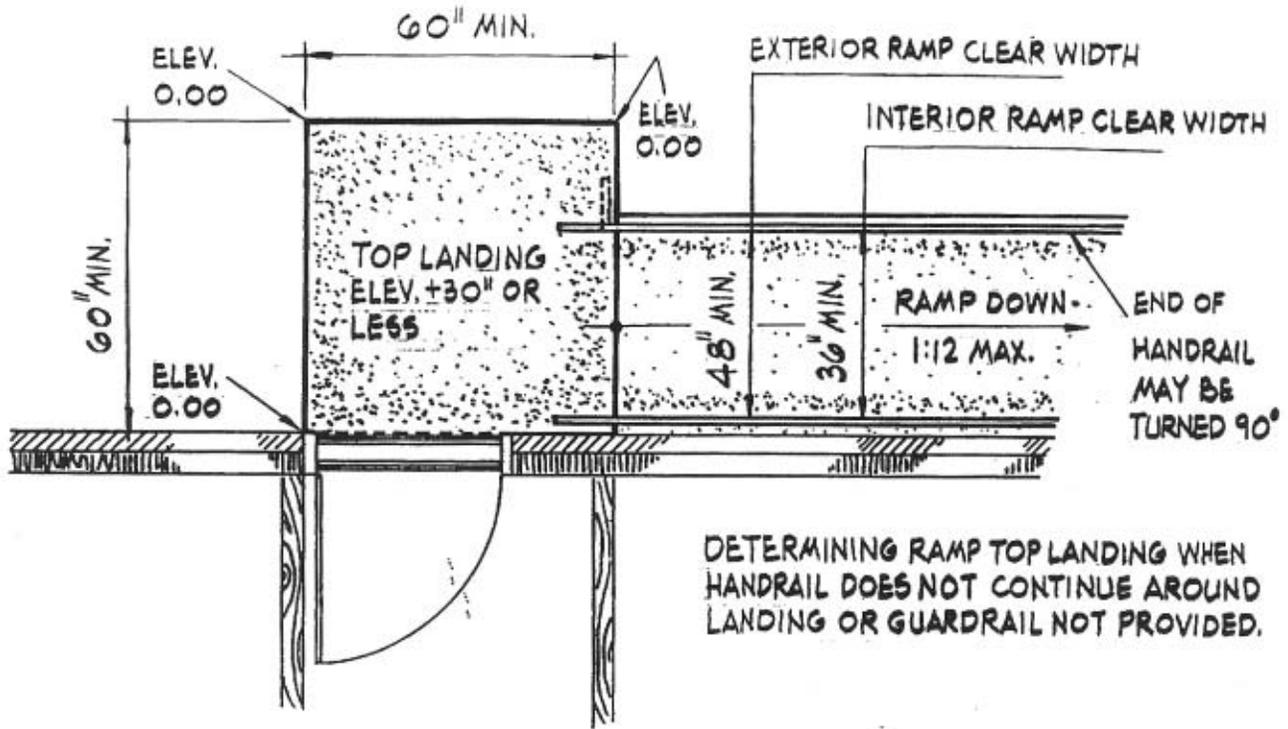
EXTERIOR RAMP CLEAR WIDTH  
INTERIOR RAMP CLEAR WIDTH

5.3.3- EACH RAMP SHALL HAVE A  
60" x 60" TOP LANDING

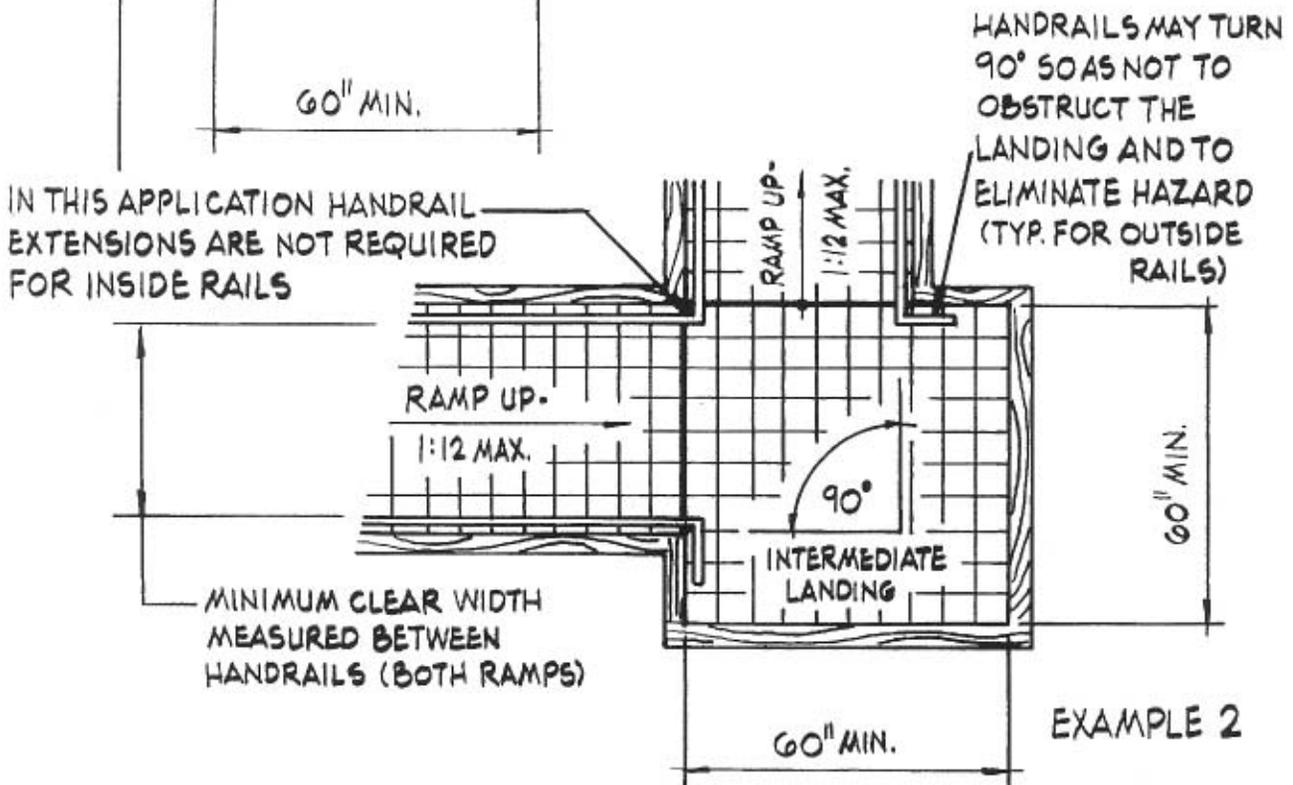
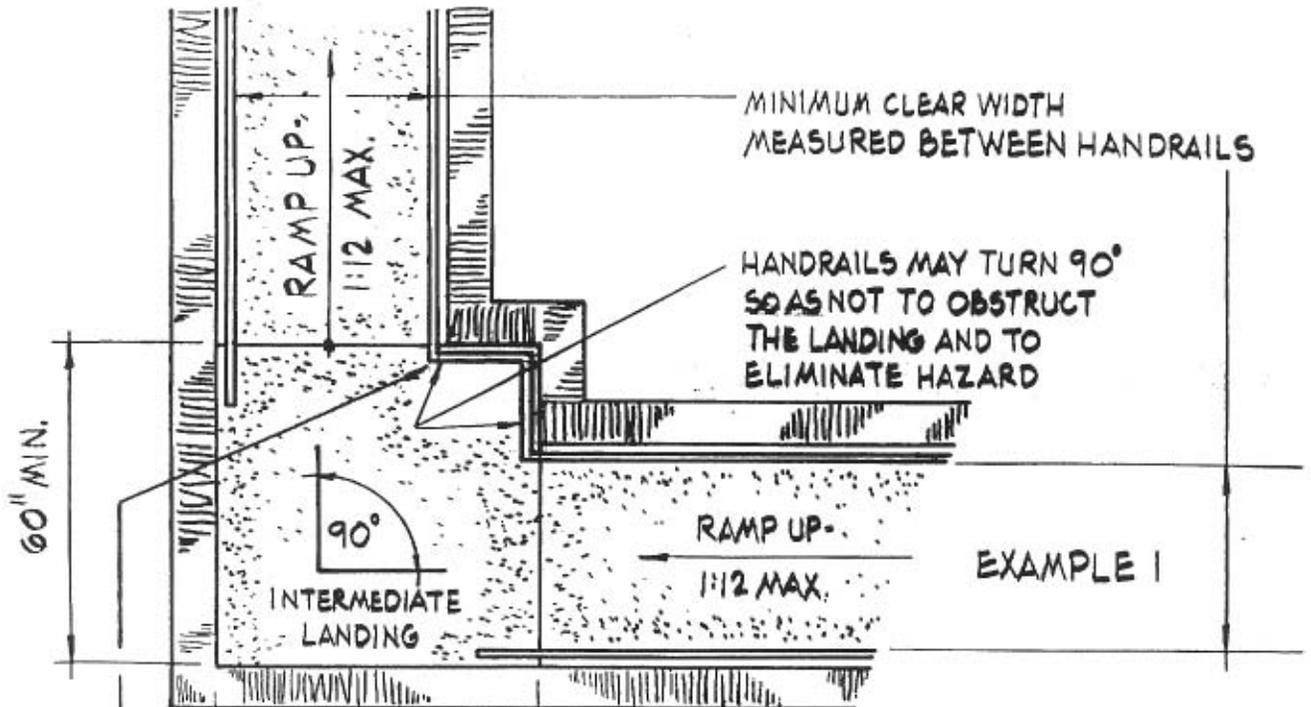
CORRIDOR/HALLWAY



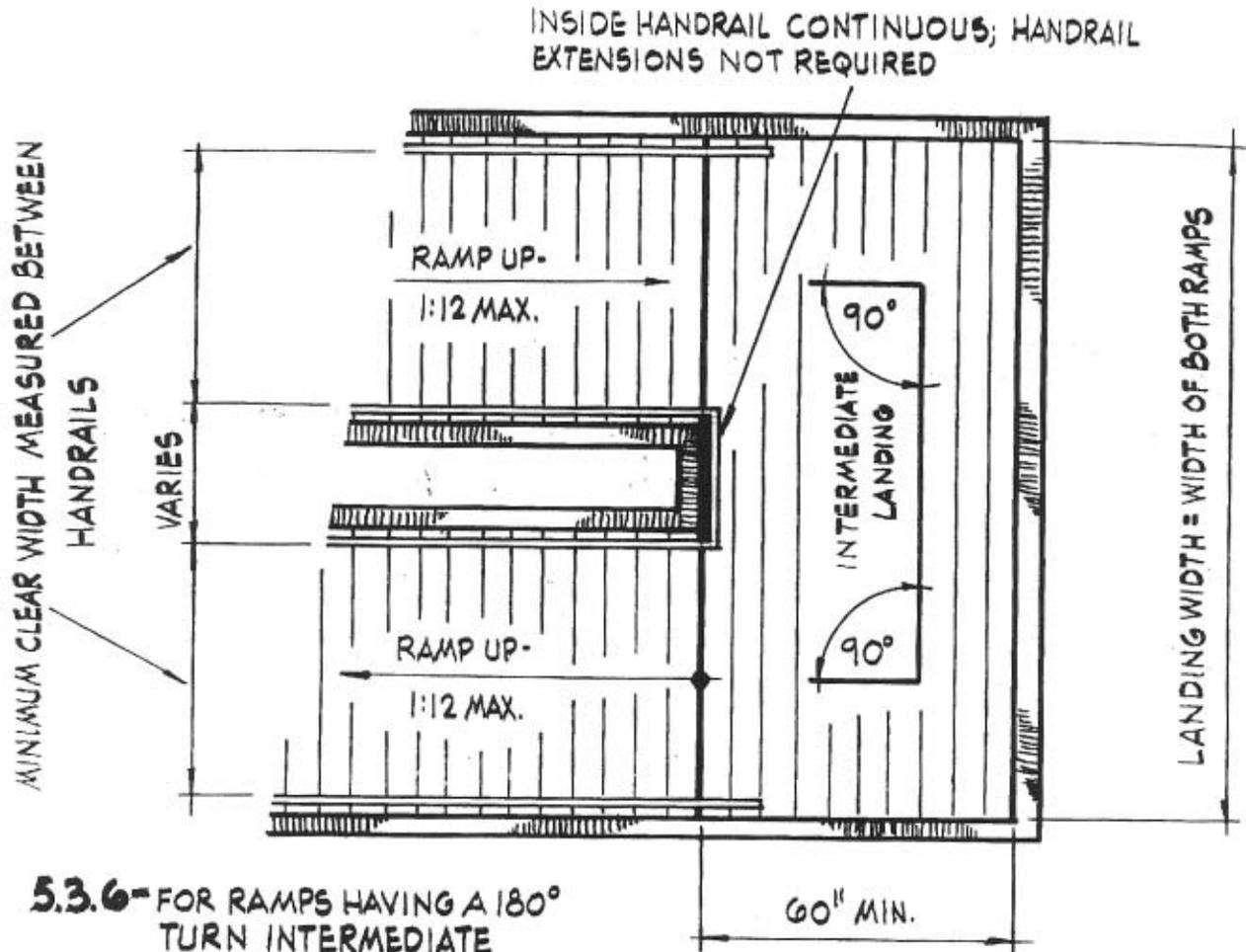
EXTERIOR RAMP CLEAR WIDTH  
INTERIOR RAMP CLEAR WIDTH



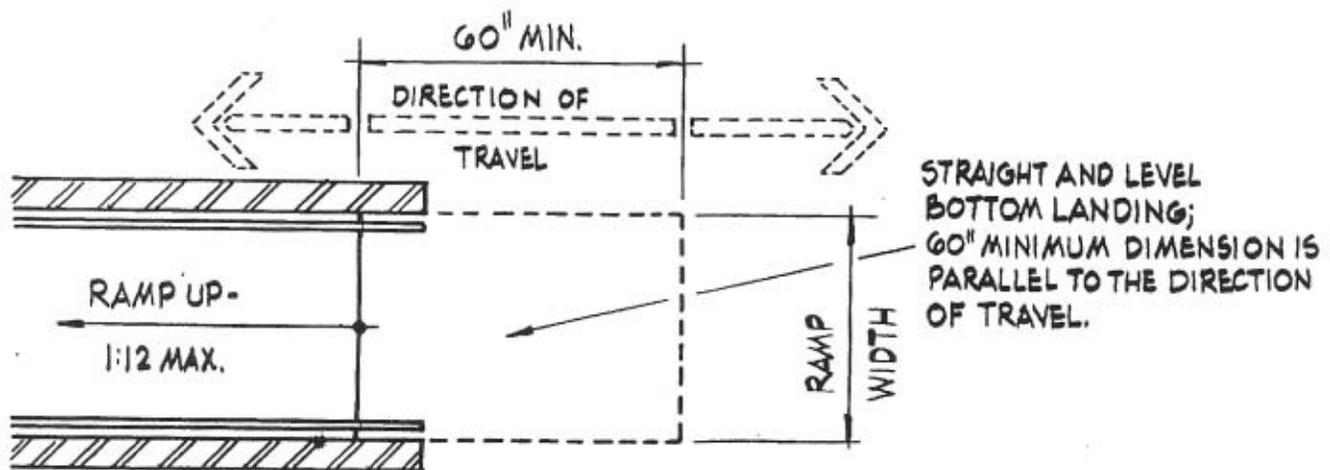
5.3.3- EACH RAMP SHALL HAVE A 60" x 60" TOP LANDING



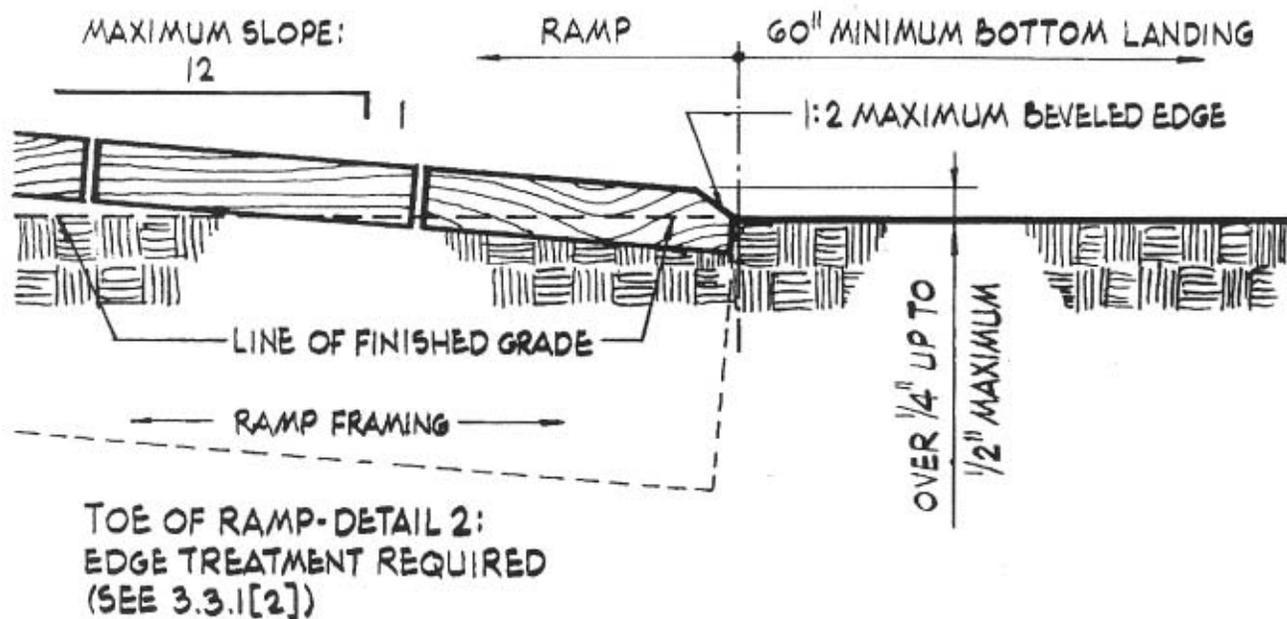
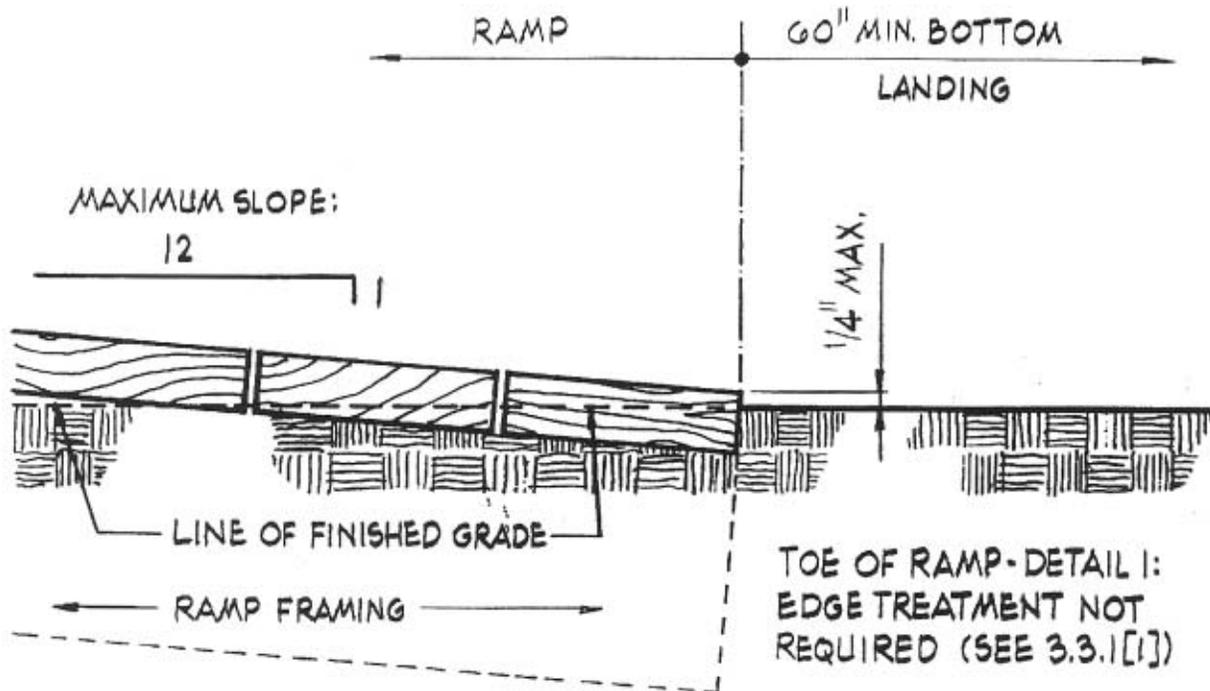
**5.3.5-** FOR RAMPS HAVING A 90° TURN INTERMEDIATE LANDINGS SHALL HAVE A MINIMUM 60" x 60" CLEAR DIMENSION.



**5.3.6-** FOR RAMP HAVING A 180° TURN INTERMEDIATE LANDINGS SHALL HAVE A MINIMUM DIMENSION OF 60" X THE WIDTH OF BOTH RAMP.

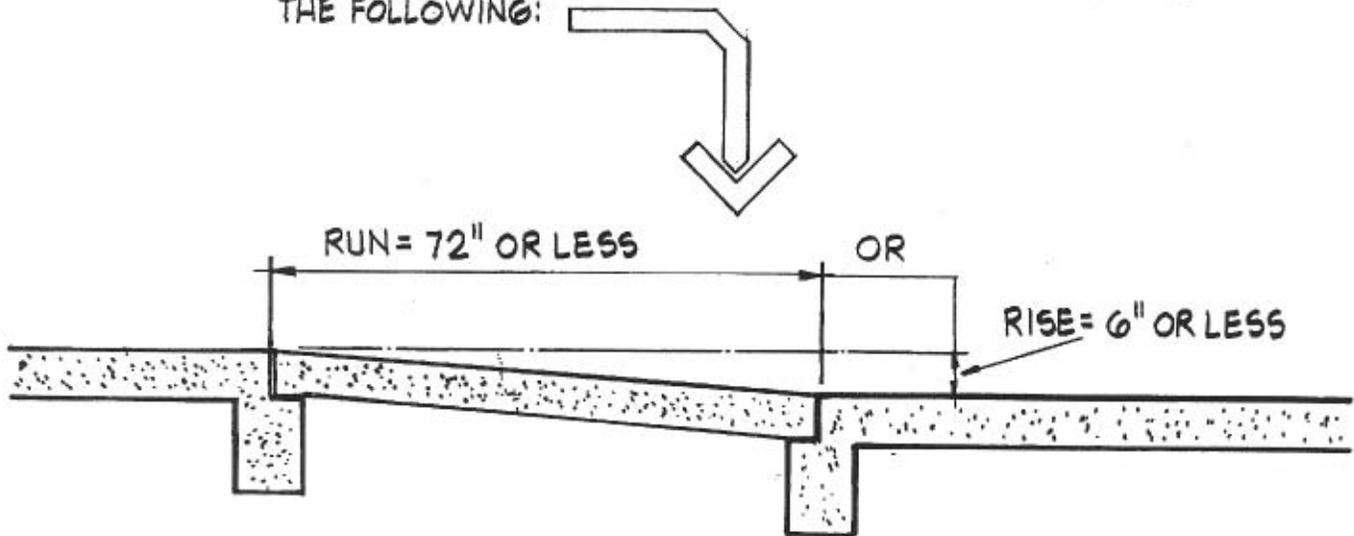


**5.3.8-** RAMP BOTTOM LANDING

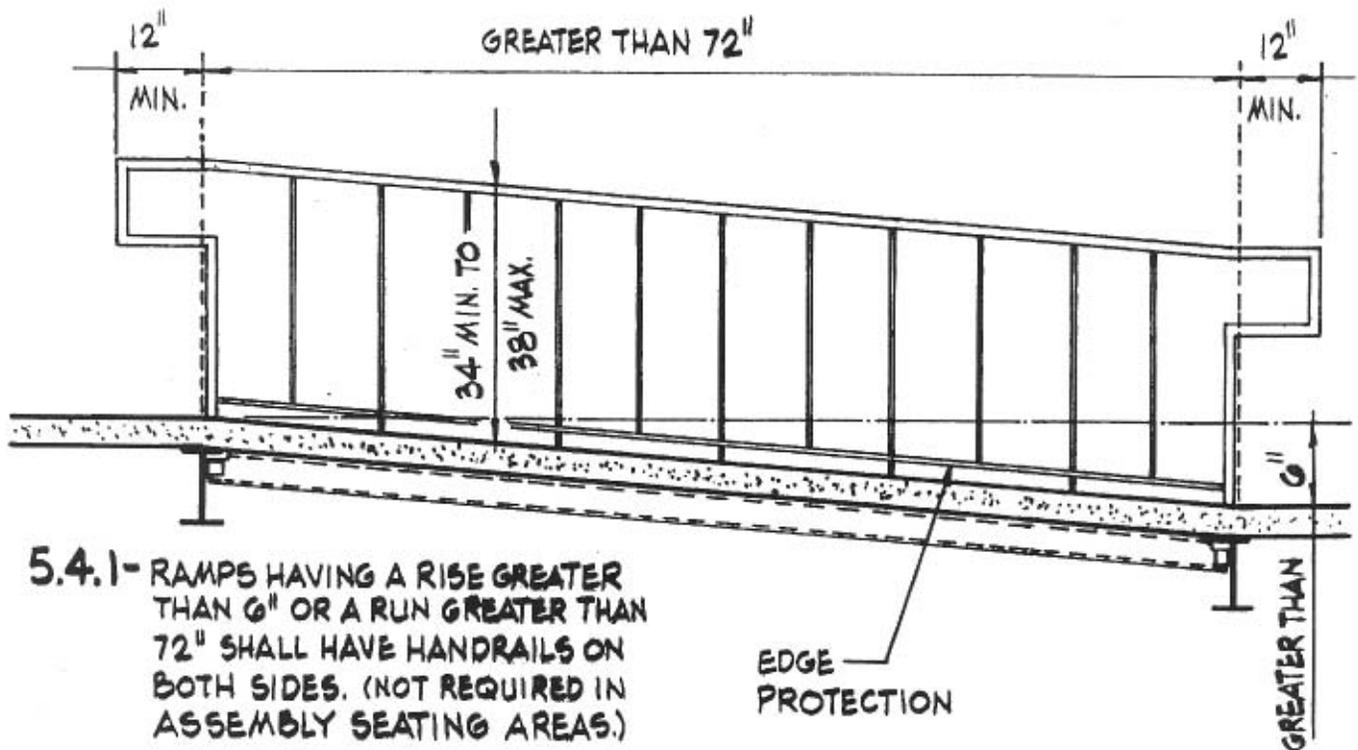


**5.3.8- RAMP BOTTOM LANDING**  
 TOE OF RAMP DETAILS ILLUSTRATING CODE COMPLIANCE  
 WHEN USING A WOOD RAMP AND AN EARTHEN  
 ACCESSIBLE ROUTE.

5.4.1- HANDRAILS ARE NOT REQUIRED IF THE RAMP CONFORMS TO THE FOLLOWING:

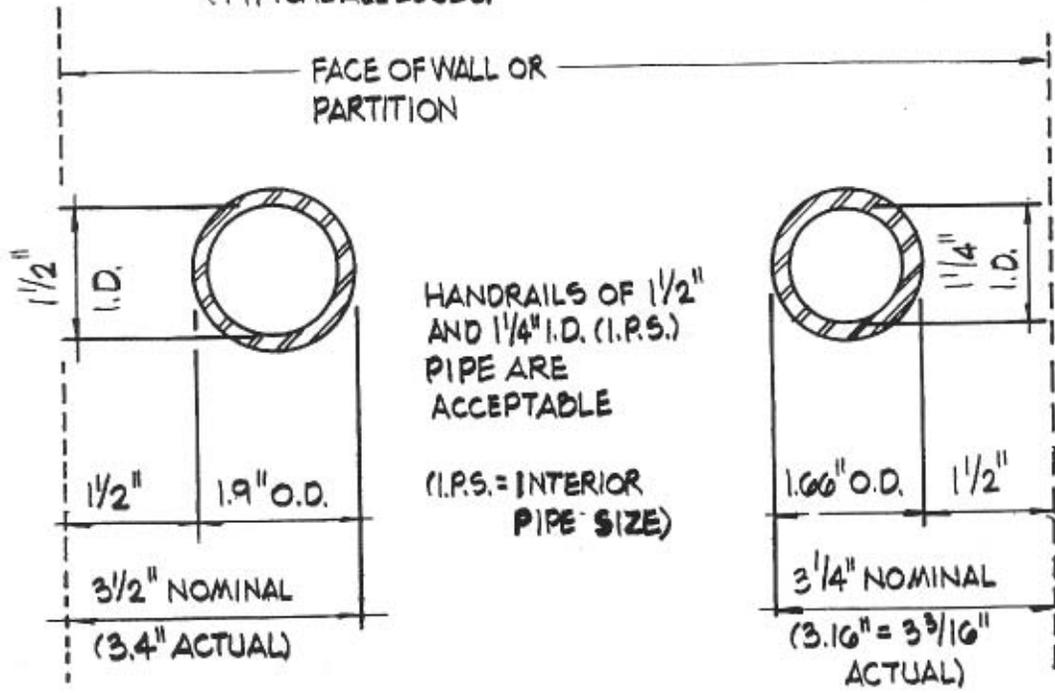
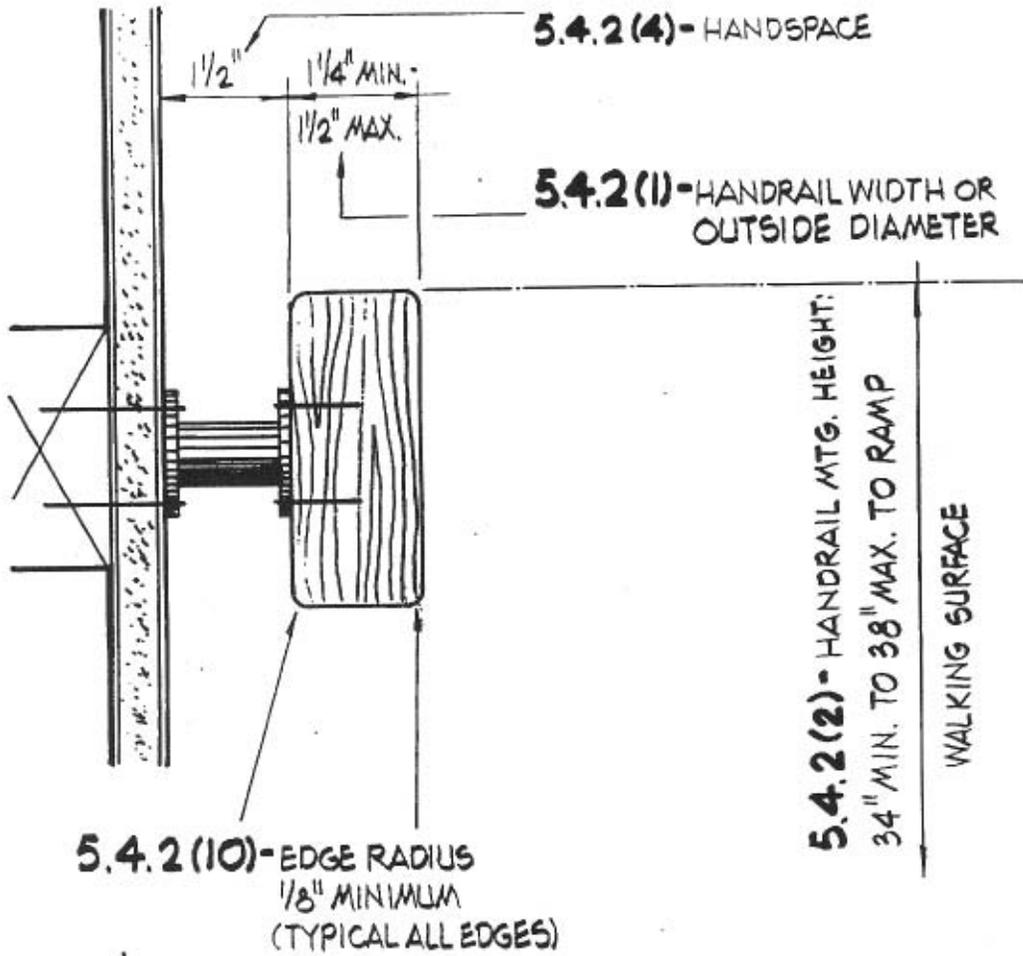


RAMP SLOPE-SEE 5.3.1 AND 5.3.2



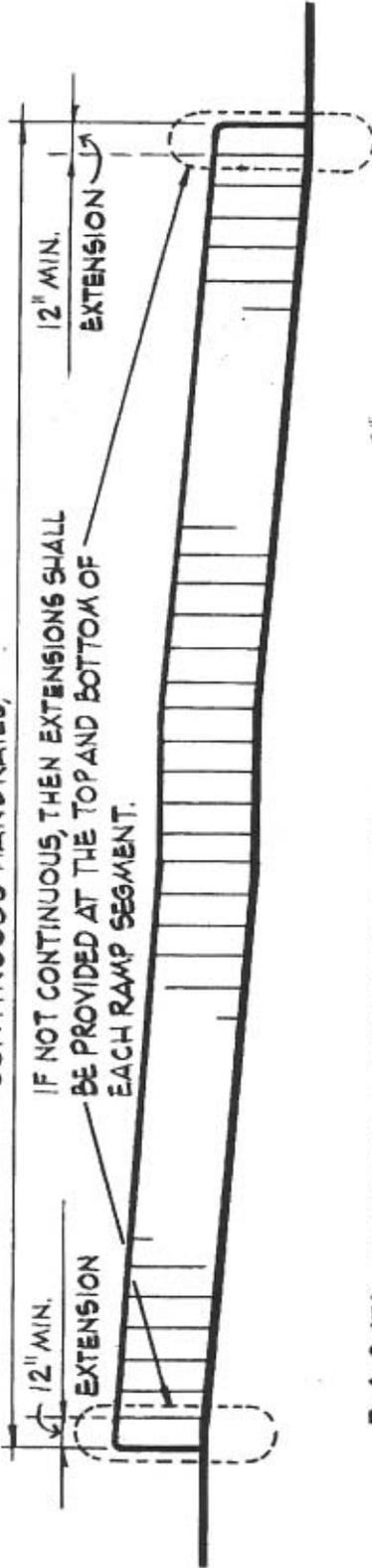
5.4.1- RAMP HAVING A RISE GREATER THAN 6" OR A RUN GREATER THAN 72" SHALL HAVE HANDRAILS ON BOTH SIDES. (NOT REQUIRED IN ASSEMBLY SEATING AREAS.)

5.4.1- RAMP REQUIRING HANDRAILS



**5.4.2 - HANDRAILS**

**CONTINUOUS HANDRAILS;**

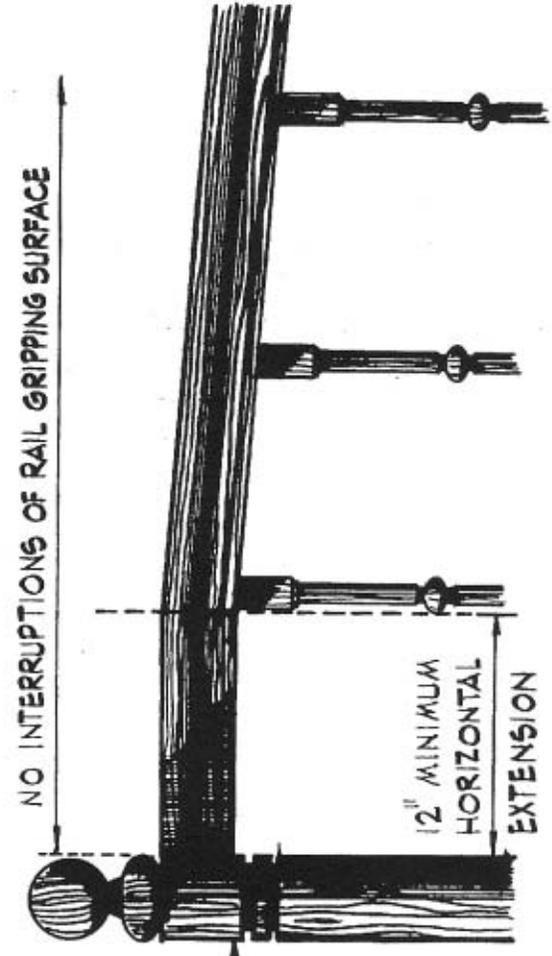


12" MIN.  
EXTENSION

IF NOT CONTINUOUS, THEN EXTENSIONS SHALL  
BE PROVIDED AT THE TOP AND BOTTOM OF  
EACH RAMP SEGMENT.

12" MIN.  
EXTENSION

**5.4.2(3)- HANDRAILS SHALL BE CONTINUOUS**



NO INTERRUPTIONS OF RAIL GRIPPING SURFACE

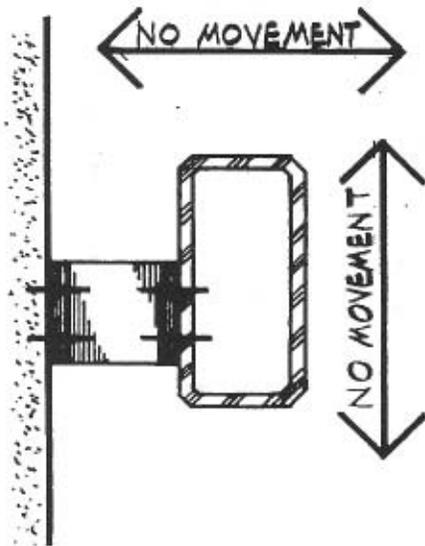
12" MINIMUM  
HORIZONTAL  
EXTENSION

A NEWEL POST MAY BE  
INSTALLED OUTSIDE THE  
REQUIRED MINIMUM HORIZONTAL  
EXTENSION OF THE HANDRAIL.

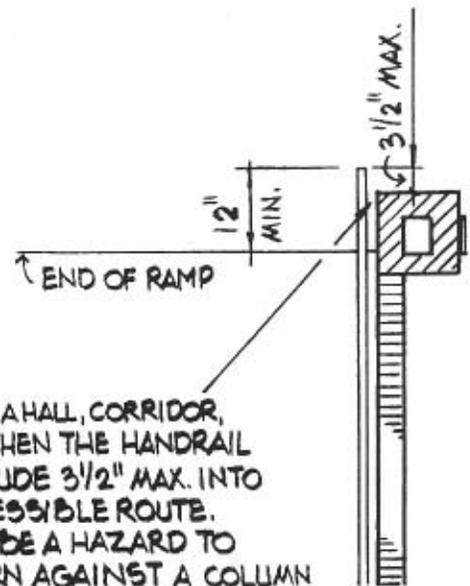
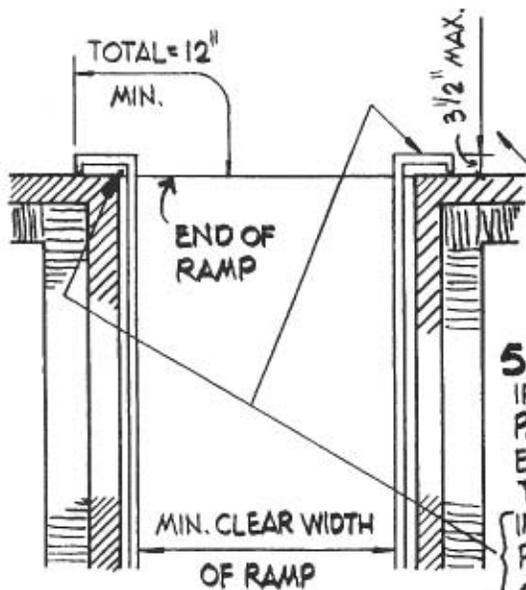
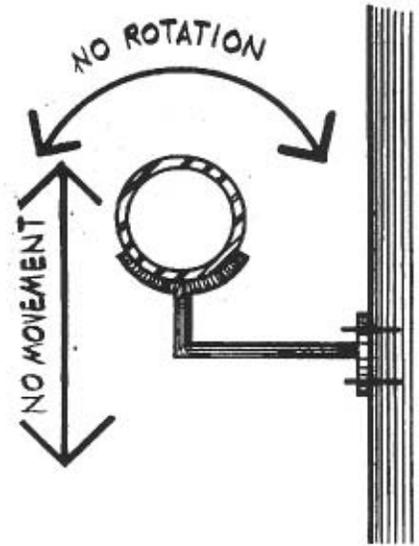
**5.4.2(6)- HANDRAIL GRIPPING SURFACES  
SHALL BE CONTINUOUS**

**5.4.2- HANDRAILS**

5.4.2(5)- FOR RAMPS HAVING A 90° OR 180° TURN THE INSIDE HANDRAIL SHALL BE CONTINUOUS. HORIZONTAL EXTENSIONS ARE NOT REQUIRED. (SEE THE ILLUSTRATIONS FOR 5.3.5.)

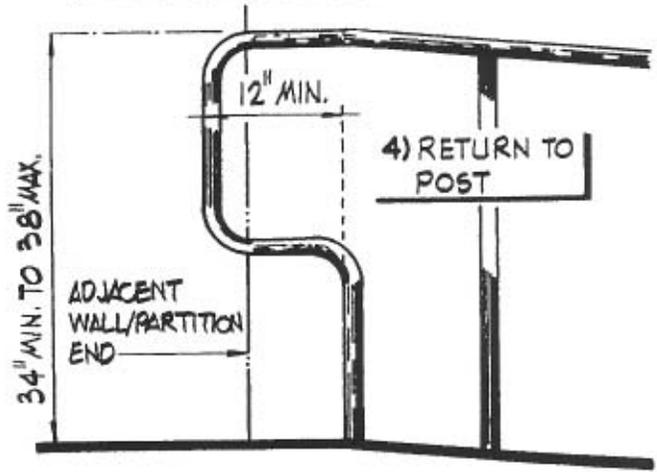
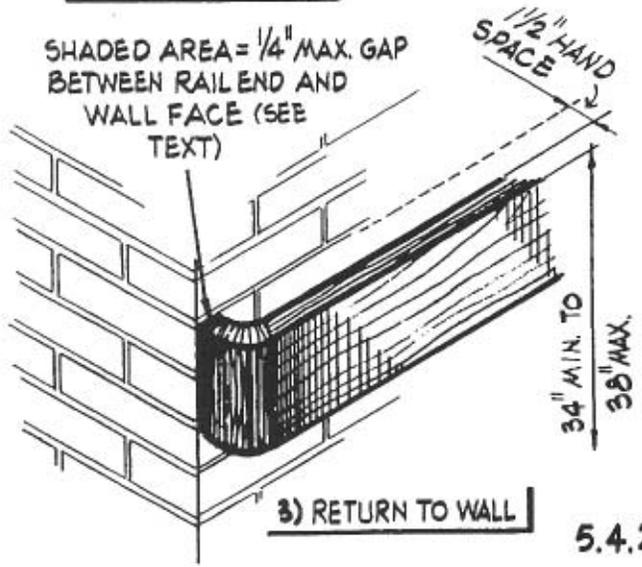
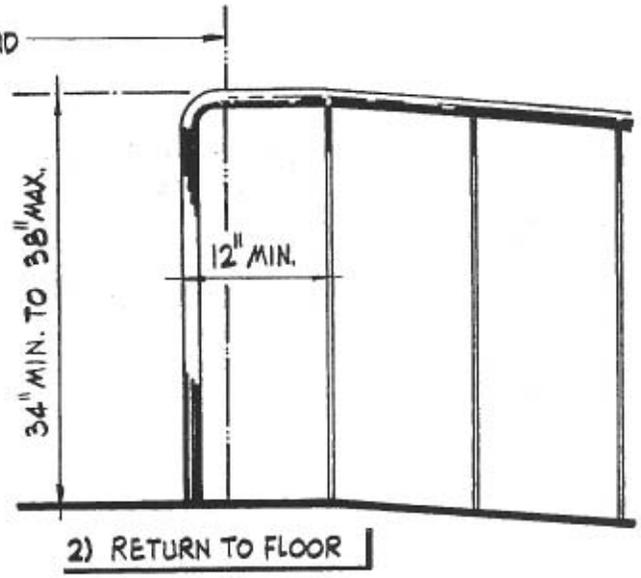
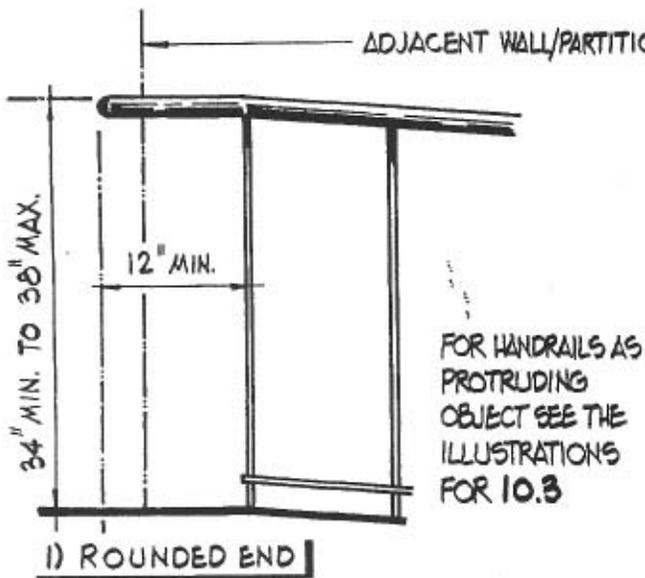


5.4.2(9)-  
HANDRAILS SHALL NOT  
ROTATE WITHIN THEIR  
FITTINGS.

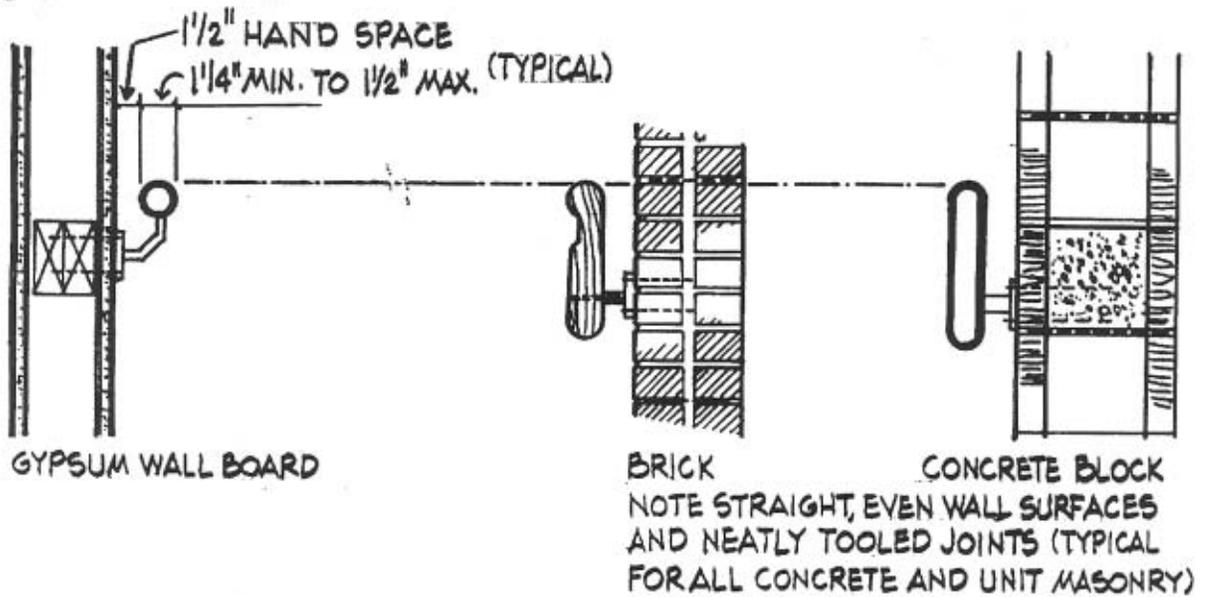


5.4.2(7)-  
IF A RAMP TERMINATES AT A HALL, CORRIDOR,  
PASSAGEWAY OR AISLE, THEN THE HANDRAIL  
EXTENSION MAY PROTRUDE 3 1/2" MAX. INTO  
THE CONNECTING ACCESSIBLE ROUTE.  
{ IF THE EXTENSION WILL BE A HAZARD TO  
PASSERSBY, IT MAY TURN AGAINST A COLUMN  
OR A CONTINUING WALL (OR PARTITION).

### 5.4.2- HANDRAILS



5.4.2(8) - HANDRAIL TERMINATION



5.4.2(10)- HANDRAILS AND ADJACENT WALL SURFACES SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS.

### 5.4.2- HANDRAILS

IF "C" IS AT, OR BELOW, 80" ABOVE THE RAMP WALKING SURFACE, THEN "C" CANNOT PROJECT BEYOND "AA" OR "BB".  
 IF "C" IS MORE THAN 80" ABOVE THE RAMP WALKING SURFACE, THEN IT CAN PROJECT ANY DISTANCE.

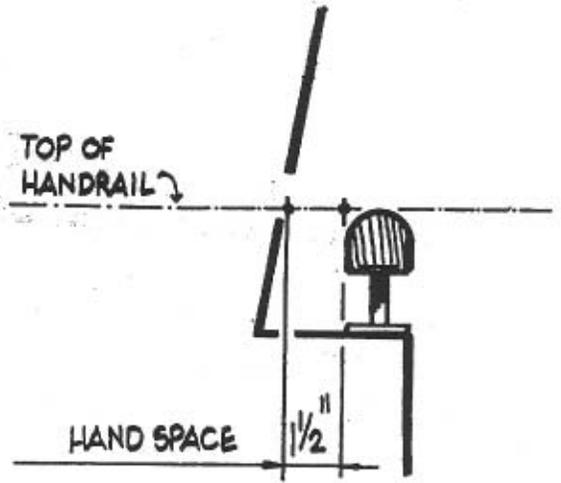
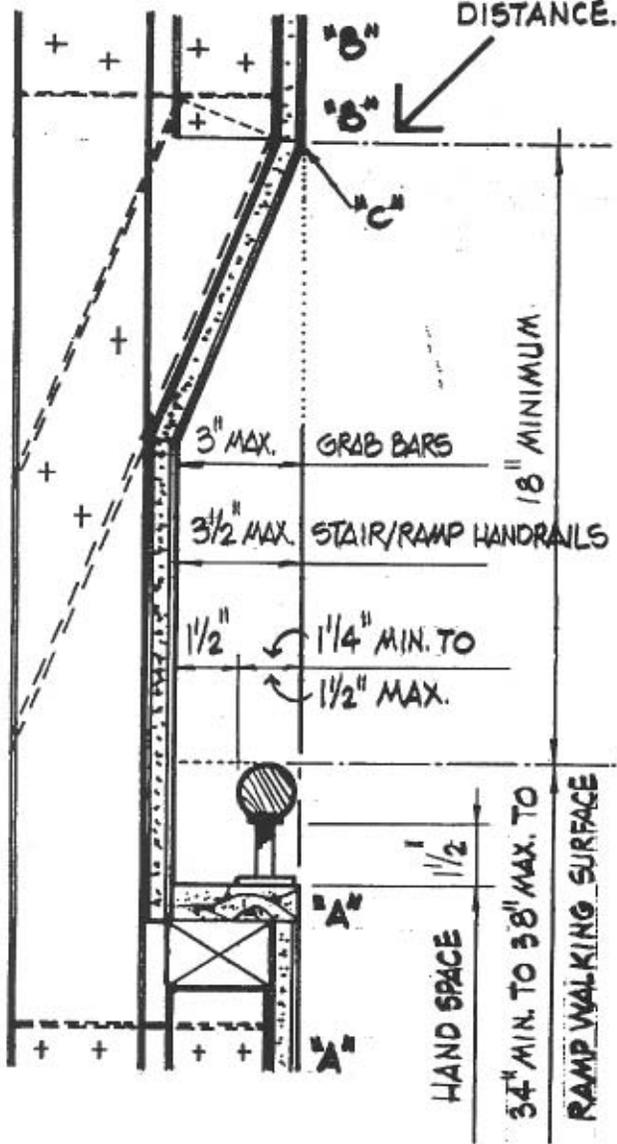
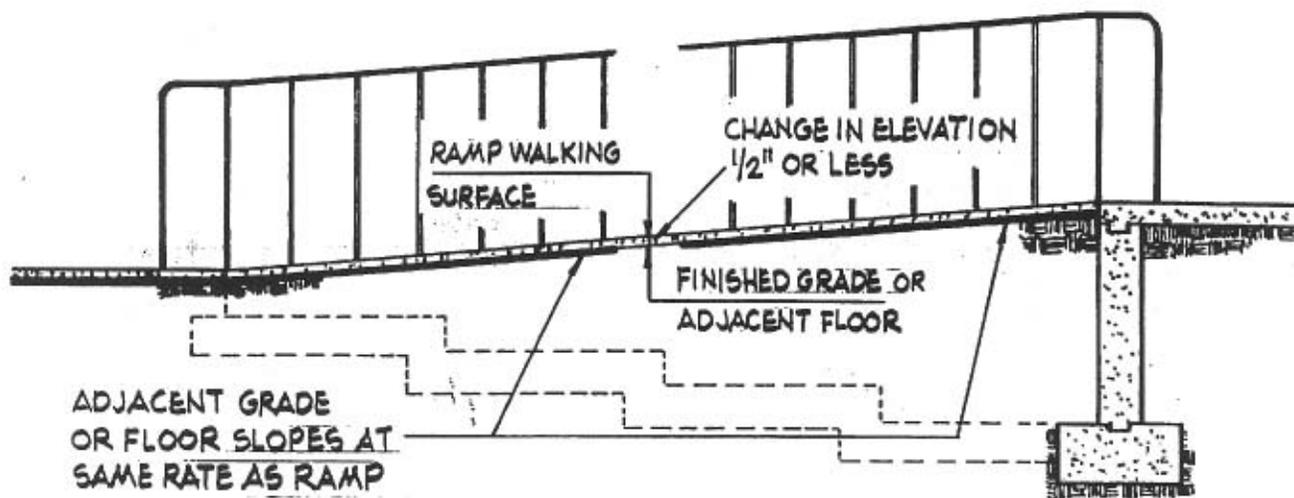


DIAGRAM OF ALTERNATE RECESS. ALTERNATES SHALL COMPLY WITH ALL DIMENSIONS AND CLEARANCES SHOWN IN PRINCIPLE DRAWING.

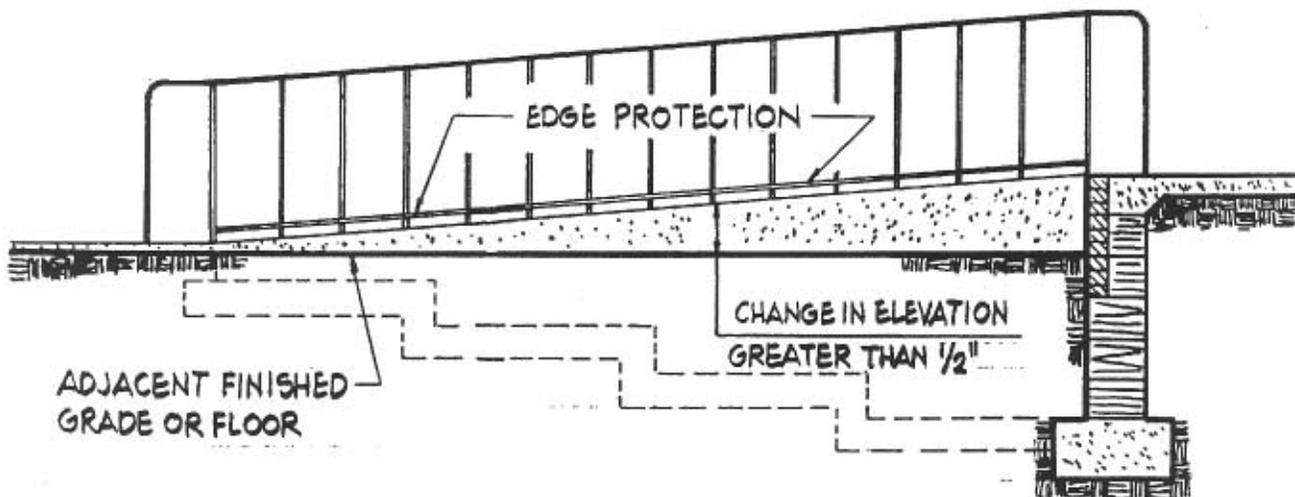
TOP OF HANDRAIL

**NOTE:**  
 STAIR AND/OR RAMP HANDRAILS MAY USE 1 1/4" TO 1 1/2" I.P.S. PIPE - SEE 5.4.2(1) AND 8.3.1 (TEXT)

**5.4.3 - HANDRAIL IN RECESS**

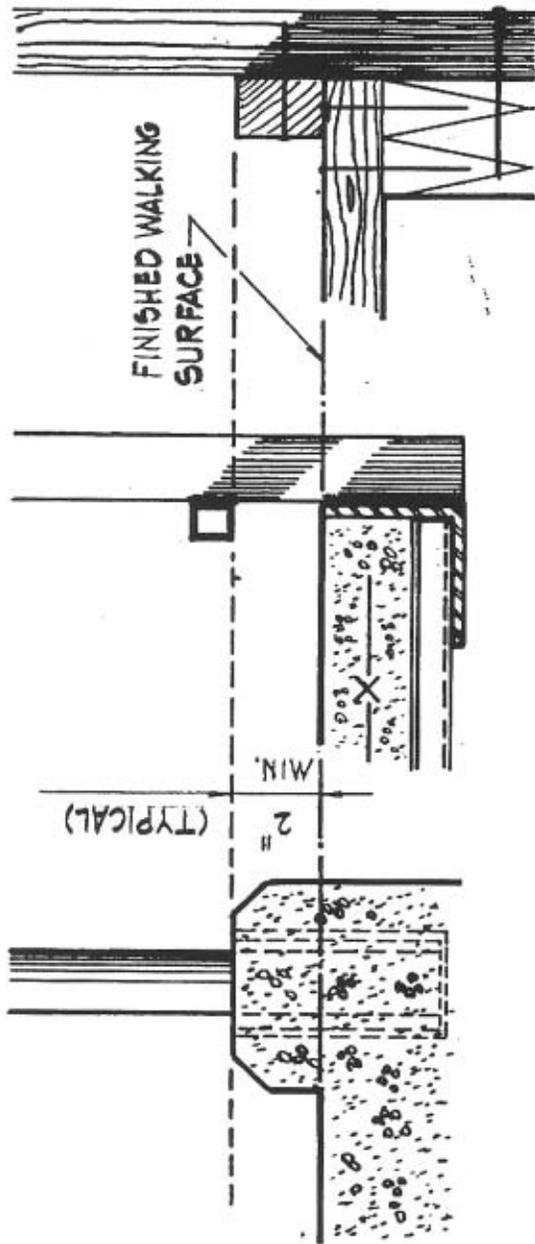


RAMP EDGE PROTECTION (NOT REQUIRED FOR CRITERIA SHOWN)



RAMP EDGE PROTECTION (REQUIRED FOR CRITERIA SHOWN)

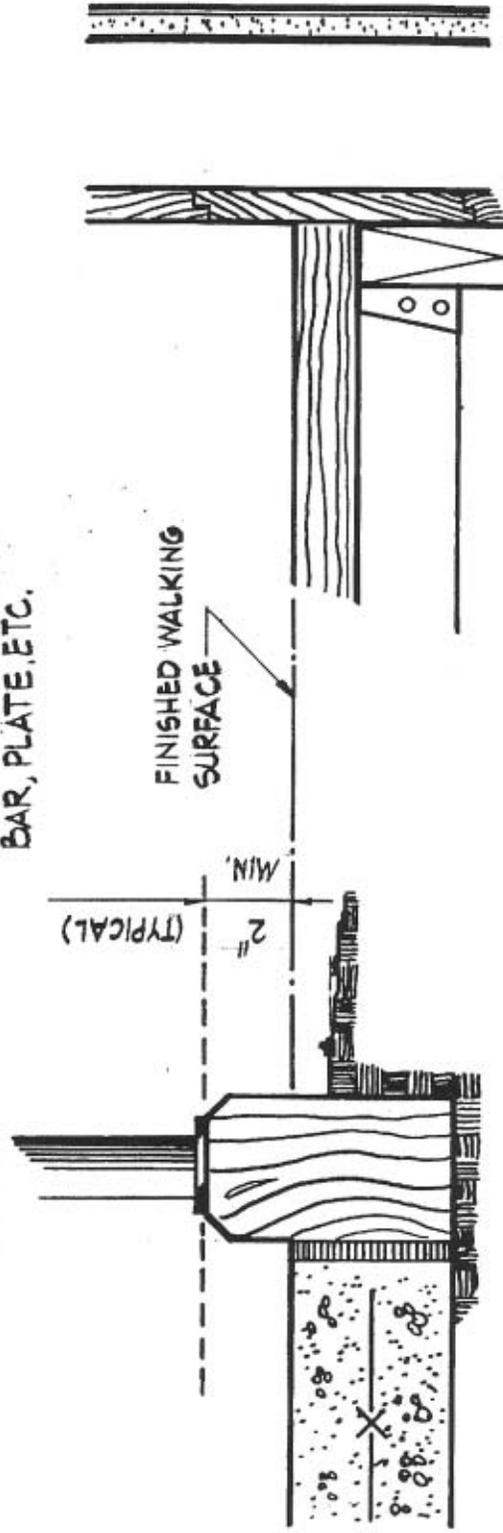
### 5.5.1- EDGE PROTECTION DEFINED



CONCRETE (OR MASONRY)

STEEL TUBE (SQUARE, ROUND, RECTANGULAR), BAR, PLATE, ETC.

WOOD



SOLID, SAWN LUMBER

SOLID WALL OR PARTITION

5.5.2- (EXAMPLES OF) EDGE PROTECTION